Wisconsin Highway Research Program
Request for Proposals
FY 2008

Problem Title

Evaluation and Recommendations for Further Development of the WisDOT Pavement Information Files (PIF) Database

Background and Problem Statement

As WisDOT moves forward to develop a more comprehensive and fully integrated data acquisition, modeling and analysis system, current tools have been identified for continued use and require modification and update versus re-invention.

The PIF database is a tool that was developed by the Department to store and track historical pavement performance data. This data consists of two basic groups – Ride and Distress data. The Department's statewide bureaus (central office) maintain all of the data while collection of said data is a shared responsibility throughout the Regions. Its primary function is to provide the trigger mechanism for pavement maintenance or rehabilitation.

While the PIF database has been an extremely valuable tool, its effectiveness in impacting improvements to pavement materials and construction techniques has been somewhat limited.

In order to realize more return on the investment made in equipment and the collecting of performance data, it is felt that enhancing the current PIF database would help to transition historical "best practices" into procedures that fit upcoming needs (ex: WisDOT commitment to the M-E Design methodology).

Scope of Work/Objective

The overall objective of this study is to define the needs of the different users of PIF and how best to accommodate these needs using available WisDOT technology. The study will also evaluate and make recommendations to refine the department's existing PIF database to enhance the type of data being collected and to also provide a link tying location references to other available visual databases (ex: pavement survey videos or the department's photo-log).

To accomplish the objective, the following tasks would be expected but not limited to:

1. Meeting/Training with WisDOT PIF experts
    a. Gain knowledge of the PIF database
    b. Define current uses and applications
2. Survey a cross section of PIF users (Researchers, WisDOT Departmental Users, and Industry) to first determine if the database is meeting their needs, then to

establish potential enhancements, or develop methods to increase the application's use. The findings of this survey will be provided in the final report.
3. Evaluate the current protocols for collecting, processing, and distributing PIF data, documenting pertinent steps.
4. Evaluate current database maintenance activities and recommend updates to existing procedures
5. Develop cross-reference system linking the performance database values to visual records
6. Create a short user guide to accompany current PIF data distribution procedures
7. Provide an economic analysis, with logistical requirements, associated with implementing any final recommendations. Results of this analysis should be used as a means for prioritizing recommended design alternatives.

Deliverables

The following deliverables at a minimum are required for project completion:

- Final report. The report should include a prioritized list of recommendations based on benefits to the Department and consideration of economic and logistical requirements.
- Summary and analysis of survey conducted in Task 2.
- Description of cross referencing system specified in Task 5 including discussion of the feasibility of implementing it.
- User manual for PIF

Length of Research and Approximate Cost to Complete

- It is anticipated that this research will be completed in 18 months for a cost not to exceed approximately $90k. Draft Final Report to be delivered 3 months prior to ending contract date. Time and cost estimates supplied in the research proposals will be evaluated by the TOC as part of the selection criteria.

Urgency and Potential Research Benefits

A good portion of project funding allocated to research is being dedicated to obtaining, deciphering, and interpreting department databases. A concentrated effort to modernize/enhance one of the major tools currently in use (PIF), would allow WisDOT to focus on the practitioner's aspect of analysis and implementation.

From an engineering point of view, there exists an opportunity to extend the benefits of embracing the M-E Design Guide by updating some of the current WisDOT tools. It is plausible that results from this project can be used to further guide the programming/design management decision process, to ultimately improve final product related directly to a forecasted performance (increase in pavement service life).